1. (PRESENTLY AMENDED) A shared system resource for use in a networked system to provide services to a plurality of clients communicating with the system resource through a network, comprising:

a plurality of domains structured as an integrated, cooperative cluster of domains including hierarchically related domains and peer related domains, each domain performing one or more functions supporting the services provided by the system resource, wherein

hierarchically related domains include a higher level domain and a lower level domain respectively performing higher and lower level operations of one or more related functions supporting the services provided by the system resource,

peer related domains include parallel domains performing related operations in mutual support of one or more related functions supporting the services provided by the system resource, and

~~certain domains including fault handling mechanisms operating independently of and cooperatively with fault handling mechanisms of other domains~~

a domain having a peer related domain monitors the peer related domain and assumes the operations performed by the peer domain upon detecting a failure in the peer related domain.

2. (PREVIOUSLY PRESENTED) The shared system resource for use in a networked system to provide services to a plurality of clients communicating with the system resource through a network of claim 1, wherein a domain comprises:

peer related domains performing related operations in mutual support of one or more related functions supporting the services provided by the system resource.

REMARKS

The present Application is a divisional application from U.S. Patent Application Serial No. 09/580,187 filed May 26, 2000 by Robert Lawrence Fair for A MULTIPLE HIERARICHAL/PEER DOMAIN FILE SERVER WITH DOMAIN BASED, CROSS DOMAIN COOPERATIVE, FAULT HANDLING MECHANISMS, was assigned to Examiner Rita A. Ziemer of Group Art Unit 2184.

Claims 1 through 5 were pending in parent Patent Application Serial No. 09/580,187 and the Examiner rejected claims 1 and 2 over prior art cited by the Examiner.

The Examiner also held that claims 3, 4 and 5 were rejected because of their dependence from a rejected base claim, but that claims 3, 4 and 5 would be allowable if rewritten in independent form incorporating all limitations of the base claim and any intervening claims.

In response, the Applicant has elected to file the present divisional application to continue prosecution of claims 1 and 2 by response to the rejection of claims 1 and 2 over the cited prior art, and to continue the prosecution of claims 3, 4 and 5 in parent Application Serial No. 09/580,187 by the amendment of claims 3, 4 and 5 therein in accordance with the Examiner's requirements for the allowability of claims 3, 4 and 5.

Considering claims 1 and 2, therefore, and in particular claim 1 as amended herein above, the present invention as recited in claim 1 is directed to a shared system resource in a networked system wherein the shared resource provides services to a plurality of clients that communicate with the system resource through the network. According to the present invention, the shared system resource is comprised of a plurality of domains wherein the domains are structured as an integrated, cooperative

cluster of domains wherein each domain performs one or more functions supporting the services provided by the system resource.

The domains include hierarchically related domains and peer related domains wherein any pair of hierarchically related domains include a higher level domain and a lower level domain that respectively perform higher and lower level operations of one or more related functions supporting the services provided by the system resource. In hierarchically related domains, and according to the present invention, either the higher domain has a supervisory relationship to the lower domain or the lower domain performs operations for the higher domain, or both. In any case, there is a superior./subordinate relationship between each pair of hierarchically related domains.

Peer related domains, in turn, are two or more domains operating in parallel to perform related operations in mutual support of one or more related functions supporting the services provided by the system resource. Each peer domain is thereby a domain that has a related peer domain and that is a peer domain of the domain to which it is related in the peer relationship, so that peer domains are associated in a reciprocal, non-hierarchical relationship with one another. Also, and according to the present invention, each peer domain includes a monitoring mechanism that monitors one or more operations of at least one peer related domain, that is, of at least one domain with which it has a peer relationship, and assumes performance of the operations of the peer domain upon detecting a failure in the peer related domain. Again, peer domains operate in parallel and sometimes in cooperation on related tasks and the relationship between peer domains is reciprocal, non-hierarchical and cooperative rather than being a hierarchical superior/subordinate relationship, as in the case of hierarchically related domains.

It will be noted that the Applicant has amended claim 1 herein above to more explicitly express the peer relationship of peer related domains and the ability for one peer domain to monitor the operations of another peer domain and to assume the operations of that peer domain if it detects an error in the operations of the peer domain.

Next considering the prior art cited by the Examiner, the Examiner had rejected claims 1 and 2 under 35 U.S.C. 102 over U.S. Patent No. 5,768,501 to Lewis for a METHOD AND APPARATUS FOR INTER-DOMAIN ALARM CORRECTION, hereafter referred to as "Lewis '501".

Lewis '501 describes a multi-domain network manager providing alarm correlation for a plurality of network domains in communications network. There is a separate, individual network management system for and corresponding to each individual domain, and each network management system monitors the corresponding, single domain and generates an intra-domain alarm indicating a specific status of the corresponding, single domain. The alarms generated by the individual network management systems are provided to the multi-domain network manager, which correlates the alarms from the individual domains and generates inter-domain alarms and corrective actions to the domains.

It is therefore apparent that the present invention as recited in claim 1 is distinguished over and from the system taught by Lewis '501 for a number of fundamental reasons. First, it must be noted that that the Lewis '501 system is not comprised of hierarchical and peer domains but in fact includes only a single layer of domains, designated as Domains 10. The other elements of the systems are not comprised of domains as defined in claim 1, that is, of functional domains performing one or more functions supporting the services provided by the system, but are

comprised of domain managers 11, one for each domain 10 in the system, and a single multi-domain manager 30. In complete contrast from domains as recited in claim 1 of the present Application, the domain managers 11 and multi-domain manager 30 of the Lewis '501 system do not perform one or more functions supporting the services provided by the system but instead function solely to manage the domains 10 and, in particular, to manage status and alarm conditions in the domains 10 of the Lewis '501 system.

Secondly, the Lewis '501 system is still further fundamentally distinguished from the present invention in that the Lewis '501 system is not comprised of hierarchical and peer domains. That is, and interpreting the term "domain" to include domain managers 11 and multi-domain manager 30 solely for the purpose of the present discussion and without any admission or agreement that either or domain managers 11 or the mult-domain manager 30 are "domains" in the meaning of the present invention, the Lewis '501 system is comprised solely of hierarchical "domains".

That is, and as described by Lewis '501, each network management system 11 monitors a corresponding single domain 10 in a hierarchical relationship wherein a domain 10 passes status information upward to the corresponding the network management system 11. The hierarchical relationship between the elements of the Lewis '501 system continues with the remaining elements of the system, each of the network managements systems 11 passing corresponding alarm signals upward to an alarm notifier 31 in the multi-domain manager 30 and the alarm notifier 31 passing the alarm information upwards to an inter-domain alarm correlation sytem 32 in the multi-domain manager 30.

The upward hierarchical relationship among the elements of the Lewis '501 system is mirrored by a similar downward hierarchical relationship among the elements.

More specifically, the inter-domain alarm correlation system 32 of the multi-domain manager 30 passes corrective actions, that is, directions or instructions for actions to be taken to correct the alarm conditions, downwards to a response interface 33 in the multi-domain manager 30, which in turn distributes the corrective actions downwards to the various network management systems 11, which pass the correction actions downward to their corresponding domains 10.

It is therefore clear that all relationships between elements in the Lewis '501 system are solely hierarchical, that is, communications and operations pass only between superior and subordinate elements, and there are no communcations or interoperations between peer elements, and no peer elements within the definition of peer element as recited in claim 1. For example, domains 10 communicate only with their respective network management systems 11, and there are no communications or interoperations either between domains 10 or between network management systems 11. In a like manner, network management systems 11 communicate only wtih either the alarm notifier 31, in the upward direction, and the response interface 33, in the downward direction and there are no communications or interoperations between alarm notifier 31 and response interface 33, and so on.

The present invention as recited in claim 1 is further basically distinguished over and from the teachings of Lewis '501 in that not only does the Lewis '501 system have no peer domains and not only in that elements on the same function level, such as "domains" 10 do not communicate, but also in that elements on the same level do not perform "related operations in mutual support of one or more related functions supporting the services provided by the system resource". Stated another way, the elements on a comparable functional level, such as "domains" 10, operate

independently and separately from one another rather than cooperatively or in mutual support of one another.

In still further fundamental distinction of the present invention over and from the teachings of Lewis '501, it must be noted that none of the elements in the Lewis '501 system, and in particular none of the elements on a common functional level, such as "domains" 10, "monitors the peer related domain and assumes the operations performed by the peer domain upon detecting a failure in the peer related domain".

In direct contrast from the present invention, it is clearly described in Lewis '501 that alarm conditions in a domain 10 are not indicated to or detected by a peer domain, of which there are none, but are passed upward to the next hierarchically superior "domain", a network management system 11, and so on upward through the chain of hierarchial "domains" to the multi-domain manager 30.

In a like manner, and again in direct contrast from the present invention, the operations of a failed peer domain are not assumed by another peer domain. Instead, it is clearly described in Lewis '501 that not only are there no "peer" domains to any domain 10, but even if other domains 10 were to be considered as "peer" domains, those "peer" domains do not assume the operations of the failed domain 10. Instead, and in direct contrast from the present invention, in the Lewis '501 system "corrective actions" for the various alarm conditions are generated by the multi-domain manager and are passed down through the hierarchical chain of system elements to the failed domain 10 in order to direct the failed domain in correcting the alarm condition.

It is therefore the belief and position of the Applicant that for the above reasons Lewis '501 does not teach or suggest the present invention as recited in claim 1 as amended herein under the requirements and provisions of 35 U.S.C. 102, or under 35 U.S.C. 103, and in fact teaches directly away from the present invention.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the present rejection of claim 1 as amended herein under 35 U.S.C. 102 over Lewis '501, and the allowance of claim 1 as amended herein.

Lastly, it will be noted that claim 2 is dependent from claim 1 as amended herein and thereby incorporates all recitations and limitations of claim 1 by dependency therefrom. It is therefore the belief and position of the Applicant that for the above reasons Lewis '501 does not teach or suggest the present invention as recited in claim 2 under the requirements and provisions of 35 U.S.C. 102, or under 35 U.S.C. 103, and in fact teaches directly away from the present invention.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the present rejection of claim 2 under 35 U.S.C. 102 over Lewis '501, and the allowance of claim 2.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

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By:_____

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